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| **Lesson Title:** Valence Electron Match Game |
| **Subject area / course / grade level:** 8th science |
| **Introduction:** This lesson can be used as the introduction to valence electrons’ importance in bonding. I used it as a re-teach after a class did not grasp the idea of valence electrons and the “octet rule”. |
| **Lesson Length:** 30-45 mins |
| **Materials:** pencil, paper, Periodic Table, Elemental Match worksheet, element cards. |
| **Lesson Overview:**  Students will participate in an activity to find a bonding partner based on the number of valence electrons for each person. |
| **Tennessee Standards:**  SPI 0807.9.9 – Use the periodic table to determine the properties of an element. |
| **Lesson objective(s):**  To properly identify bonding partners based on their number of valence electrons through a matching game. |
| **ENGAGEMENT**   * The teacher should probably do a quick review of how to identify an element’s group number, number of p,n,e., and valence electrons before beginning. Engage the students by telling them they will play a game in order to make a chemical bond. |
| **EXPLORATION**   * Assign each student an element. (It is probably best to only use elements in groups 1,2, and 13-18 unless they can look up valence electrons on the computer. I also wouldn’t suggest going past the second or third period if you can help it.) Once they complete the top of the sheet (down to the table), give them 5-10 minutes to find all their possible matches. When the time is up (or they seem to be getting wild) call them back and have students share their findings: who had the most matches, least, etc. |
| **EXPLANATION**   * Ask students why they got so many/few matches, why they couldn’t bond with others, why some couldn’t find any matches at all. (Group 18 will have no matches, and hydrogen can bond with any group 7 element OR another hydrogen [I put 2 hydrogens in]). |
| **ELABORATION**   * This is where we can apply this knowledge to the table to see how groups share specific properties. Another suggestion is to make them create groups of 3 elements in the same activity. This can also lead into some discussions about the specific bonds and how they can be manipulated if needed. (Covalent Bonds can share without actually reaching 8, etc.) |
| **EVALUATION**   * Most evaluation is informal, just checking to see how they are doing, finding partners, oral answers, etc. Another assessment could be used to check retention of the idea with questions such as (which groups will commonly bond together, which group doesn’t form bonds which ones will be most reactive, etc.) |